BIOMETRIKA

FOUNDED BY

W. F. R. WELDON, FRANCIS GALTON AND KARL PEARSON

MANAGING EDITOR

E. S. PEARSON

ASSOCIATE EDITORS

M. G. KENDALL JOHN WISHART

in consultation with

HARALD CRAMÉR J. B. S. HALDANE

F. N. DAVID H. O. HARTLEY

R. C. GEARY D. G. KENDALL

VOLUME 42

1955

ISSUED BY

THE BIOMETRIKA OFFICE, UNIVERSITY COLLEGE, LONDON

PRINTED AT THE UNIVERSITY PRESS, CAMBRIDGE

First printed in Great Britain at the University Press, Cambridge
Reprinted by offset-litho
by Jos.Adam, Brussels - Belgium

CONTENTS OF VOLUME 42

Memoirs and Miscellanea

PAGE

ANDREWS, F. C. and CHERNOFF, H. A large-sample bioassay design with random doses and uncertain concentration 307

ANIS, A. A. The variance of the maximum of partial sums of a finite number of independent normal variates 96

ARMSEN, P. Tables for significance tests of 2×2 contingency tables 494

BARTLETT, M. S. Approximate confidence intervals. III. A bias correction . . 201

BARTLETT, M. S. and MEDHI, J. On the efficiency of procedures for smoothing periodograms from time series with continuous spectra. 143

BRADLEY, R. A. Rank analysis of incomplete block designs. III. Some large-sample results on estimation and power for a method of paired comparisons . . 450

BROADBENT, S. R. Quantum hypotheses 45

CHAPMAN, D. G. Population estimation based on change of composition caused by a selective removal 279

CHERNOFF, H. (*See* ANDREWS, F. C.)

CHU, J. T. On bounds for the normal integral 263

CHU, J. T. The 'Inefficiency' of the sample median for many familiar symmetric distributions 520

COHEN, A. C. Censored samples from truncated normal distributions . . . 516

COX, D. R. and STUART, A. Some quick sign tests for trend in location and dispersion 80

DAVID, F. N. Studies in the history of probability and statistics. I. Dicing and gaming (a note on the history of probability) 1

DAVID, F. N. and KENDALL, M. G. Tables of symmetric functions. Part V. . 223

DAVID, H. A. A note on moving ranges 512

DUNNETT, C. W. and SOBEL, M. Approximations to the probability integral and certain percentage points of a multivariate analogue of Student's t-distribution 258

EDITORIAL. The normal probability function: tables of certain area-ordinate ratios and of their reciprocals 217

FOSTER, F. G. A note on Bailey's and Whittle's treatment of a general stochastic epidemic 123

GANI, J. Some problems in the theory of provisioning and of dams 179

PAGE

GANI, J. Some theorems and sufficiency conditions for the maximum-likelihood estimator of an unknown parameter in a simple Markov chain 342

GHOSH, M. N. Simultaneous tests of linear hypotheses 441

GOOD, I. J. The likelihood ratio test for Markoff chains 531

GULLAND, J. A. On the estimation of population parameters from marked members 269

HABERMAN, S. Distributions of Kendall's tau based on partially ordered systems 417

HALDANE, J. B. S. Substitutes for χ^2 265

HALDANE, J. B. S. A problem in the significance of small numbers 266

HALDANE, J. B. S. The rapid calculation of χ^2 as a test of homogeneity from a $2 \times n$ table 519

HANNAN, E. J. Exact tests for serial correlation 133

HANNAN, E. J. An exact test for correlation between time series 316

HEINE, V. Models for two-dimensional stationary stochastic processes . . . 170

HODGES, J. L. Galton's rank-order test 261

HUITSON, A. A method of assigning confidence limits to linear combinations of variances 471

HUZURBAZAR, V. S. Exact forms of some invariants for distributions admitting sufficient statistics 533

JAMES, G. S. Cumulants of a transformed variate 529

JOWETT, G. H. Sampling properties of local statistics in stationary stochastic series 160

KENDALL, M. G. (*See* DAVID, F. N.)

LESLIE, P. H. A simple method of calculating the exact probability in 2×2 contingency tables with small marginal totals 522

MAUTNER, A. J. (*See* RUSHTON, S.)

MEDHI, J. (*See* BARTLETT, M. S.)

MOHAN, C. The gambler's ruin problem with correlation 486

PAGE, E. S. Control charts with warning lines 243

PAGE, E. S. A test for a change in a parameter occurring at an unknown point . 523

POWELL, E. O. Some features of the generation times of individual bacteria . 16

RUSHTON, S. and MAUTNER, A. J. The deterministic model of a simple epidemic for more than one community 126

SAMPFORD, M. R. The truncated negative binomial distribution 58

PAGE

SIMON, H. A. On a class of skew distribution functions 425

STUART, A. A test for homogeneity of the marginal distributions in a two-way classification 412

STUART, A. A paradox in statistical estimation 527

STUART, A. (*See* COX, D. R.)

TATE, R. F. The theory of correlation between two continuous variables when one is dichotomized 205

THOMPSON, H. R. Spatial point processes, with applications to ecology . . 102

THOMSON, G. W. Bounds for the ratio of range to standard deviation . . . 268

TUKEY, J. W. Interpolations and approximations related to the normal range . 480

WATSON, G. S. Serial correlation in regression analysis. I. 327

WAUGH, W. A. O'N. An age-dependent birth and death process 291

WHITTLE, P. The outcome of a stochastic epidemic—a note on Bailey's paper . 116

WILK, M. B. The randomization analysis of a generalized randomized block design 70

WILLIAMS, E. J. Significance tests for discriminant functions and linear functional relationships 360

WISE, J. The autocorrelation function and the spectral density function . . 151

YATES, F. A note on the application of the combination of probabilities test to a set of 2×2 tables 404

YATES, F. The use of transformations and maximum likelihood in the analysis of quantal experiments involving two treatments 382

Book Reviews

BARTLETT, M. S. *An Introduction to Stochastic Processes with special reference to Methods and Applications* . . . . . F. N. DAVID 539

BENNETT, C. A. and FRANKLIN, N. L. *Statistical Analysis in Chemistry and the Chemical Industry* . . . . . G. E. P. BOX 542

BICKLEY, W. G. *Bessel Functions and Formulae* . . . D. E. BARTON 275

BLISS, C. I. and CALHOUN, D. W. *Outline of Biometry and Statistics* . . . . . C. A. B. SMITH 541

DAVIES, O. L. *Design and Analysis of Industrial Experiments* L. MCMULLEN 272

HANSEN, M. H., HURWITZ, W. N. and MADOW, W. G. *Sample Survey Methods and Theory* . . . . . F. N. DAVID 272

HOEL, P. G. *Introduction to Mathematical Statistics* . . . P. G. MOORE 271

HOOKER, P. F. and LONGLEY-COOK, L. H. *Life and other Contingencies*, Vol. 1 . . . . . N. L. JOHNSON 274

KEMPTHORNE, O., BANCROFT, T. A., GOWEN, J. W. and LUSH, J. L. *Statistics and Mathematics in Biology* . . . . . C. A. B. SMITH 542

LOÈVE, M. *Probability Theory* . . . . . F. N. DAVID 540

NATIONAL BUREAU OF STANDARDS. *Publications of the U.S. Department of Commerce, Applied Mathematics Series* 9, 30, 35, 36, 40 D. E. BARTON and E. S. PEARSON 276

THE RAND CORPORATION. *A Million Random Digits with* 100,000 *Normal Deviates* . . . . . P. G. MOORE 543

ROYAL SOCIETY. *Table of Binomial Coefficients* . . . . P. G. MOORE 275

SLUTSKII, E. E. (Ed. KOLMOGOROV, A. N.) *Tables for the calculation of the incomplete* Γ*-function and the* χ^2*-probability function* . . . N. L. JOHNSON 543

SMITH, C. A. B. *Biomathematics* . . . . . M. G. KENDALL 271

SUKHATME, PANDURANG V. *Sampling Theory of Surveys with Applications* . . . . . J. DURBIN 273

WALKER, HELEN M. and LEV, J. *Statistical Inference* . . . F. G. FOSTER 540

WOLD, H. (with JUREEN, LARS) *Demand Analysis* . . . F. G. FOSTER 538

WOLD, H. (with WHITTLE, P.) *A Study in the Analysis of Stationary Time-Series.* 2nd edition . . . . . G. M. JENKINS 538

WOLFENDEN, H. H. *Population Statistics and their Compilation* . N. L. JOHNSON 274